

**PATENT**Attorney Docket No. **DHI-06207****IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Application of: Yung T. Huang

Serial No.: 09/844,311

Group No.: Not yet assigned

Filed: 04/27/01

Examiner: Not yet assigned

Entitled: **Cells For Detection of Enteroviruses****PRELIMINARY AMENDMENT**Assistant Commissioner for Patents
Washington, D.C. 20231**CERTIFICATE OF MAILING UNDER 37 CFR § 1.8(a)**I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to the: Assistant Commissioner for Patents, Washington, D.C. 20231, on **July 5, 2001**.By: 

Anne M. Neiswander

Sir or Madam:

Prior to examination of the instant application, please amend the application as follows.

Instructions to amend the specification, and replacement paragraphs in clean form pursuant to 37 C.F.R. §1.121(b) are included beginning on page 2 and Tab 1 of this communication. A marked-up version of the specification's replacement paragraphs pursuant to 37 C.F.R. §1.121(b) is attached as Appendix I and Tab 2.

PATENT

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CLEAN VERSION OF REPLACEMENT PARAGRAPHS IN THE SPECIFICATION
PURSUANT TO 37 C.F.R. §1.121(b)

IN THE SPECIFICATION:

On page 10, line 5, please insert the following as a separate new paragraph:

The file of this patent contains at least one drawing executed in color. Copies of this patent with color drawings will be provided by the Patent and Trademark Office upon request and payment of the necessary fee.

Replace pages 41, 42, 44, 45, 51, and 52, with the pages which have corresponding page numbers and which are enclosed at Tab 1.

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REMARKS


The specification has been amended to indicate that color photographs are included in the application as required by 37 C.F.R. § 1.84(a)(2)(iii).

The specification has also been amended to correct typographical errors in formatting the Tables which appear on pages 41, 42, , 44, 45, 51, and 52. In each of the amended Tables, the formatting of the portion of the Tables which appears on the right hand side of the page has been amended to conform it to the formatting of the left hand portion of the Table on the same page.

These amendments do not introduce new matter.

Applicant respectfully requests entry of this Preliminary Amendment prior to examination of the present application.

Dated: July 5, 2001


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MARKED-UP VERSION OF SPECIFICATION'S REPLACEMENT PARAGRAPHS

IN THE SPECIFICATION:

The file of this patent contains at least one drawing executed in color. Copies of this patent with color drawings will be provided by the Patent and Trademark Office upon request and payment of the necessary fee.

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Table 2. Detection of Echoviruses Using BGMK (BG) Cells And BGMK-hDAF (BG-D) Cells

Echo-4	*	DAY 1		DAY 2		DAY 3	
		BG	BG-D	BG	BG-D	BG	BG-D
	-1	1+	2+	2+	3+	3+	3+
		1+	2+	2+	3+	3+	3+
	-2	1+	2+	1+	2+	2+	2+
		1+	2+	1+	2+	2+	2+
	-3	-	1+	-	1+	2+	2+
		-	1+	-	1+	2+	2+
	-4	-	-	-	-	2+	1+
		-	-	-	-	1+	1+
-5	-	-	-	-	1+	1+	
	-	-	-	-	-	-	
-6	-	-	-	-	-	-	
	-	-	-	-	-	-	

Echo-9	*	DAY 1		DAY 2		DAY 3	
		BG	BG-D	BG	BG-D	BG	BG-D
	-1	2+	3+	4+	4+	4+	4+
		2+	3+	4+	4+	4+	4+
	-2	1+	2+	4+	4+	4+	4+
		1+	2+	4+	4+	4+	4+
	-3	-	1+	3+	3+	4+	4+
		-	1+	3+	3+	4+	4+
	-4	-	-	2+	2+	3+	3+
		-	-	2+	2+	3+	3+
-5	-	-	1+	1+	2+	2+	
	-	-	-	-	-	-	
-6	-	-	-	-	-	-	
	-	-	-	-	-	-	
-7	-	-	-	-	-	-	
	-	-	-	-	-	-	
-8	-	-	-	-	-	-	
	-	-	-	-	-	-	

Table 2. Detection of Echoviruses Using BGMK (BG) Cells And BGMK-hDAF (BG-D) Cells

Echo-6	*	DAY 1		DAY 2		DAY 3	
		BG	BG-D	BG	BG-D	BG	BG-D
	-1	-	4+	-	4+	-	4+
		-	4+	-	4+	-	4+
	-2	-	4+	-	4+	-	4+
		-	4+	-	4+	-	4+
	-3	-	4+	-	4+	-	4+
		-	4+	-	4+	-	4+
	-4	-	4+	-	4+	-	4+
		-	4+	-	4+	-	4+
	-5	-	1+	-	4+	-	4+
		-	1+	-	4+	-	4+
	-6	-	1+	-	4+	-	4+
		-	1+	-	4+	-	4+
	-7	-	1+	-	4+	-	4+
		-	-	-	4+	-	4+
	-8	-	-	-	4+	-	4+
		-	-	-	-	-	-

Echo-11	*	DAY 1		DAY 2		DAY 3	
		BG	BG-D	BG	BG-D	BG	BG-D
	-1	-	4+	-	4+	-	4+
		-	4+	-	4+	-	4+
	-2	-	4+	-	4+	-	4+
		-	4+	-	4+	-	4+
	-3	-	3+	-	4+	-	4+
		-	3+	-	4+	-	4+
	-4	-	2+	-	4+	-	4+
		-	2+	-	4+	-	4+
	-5	-	1+	-	4+	-	4+
		-	1+	-	4+	-	4+
	-6	-	1+	-	3+	-	4+
		-	1+	-	3+	-	4+
	-7	-	-	-	1+	-	2+
		-	-	-	1+	-	3+
	-8	-	-	-	-	-	-
		-	-	-	-	-	-

addition to the detection of a higher dilution of these echoviruses, BGMK-DAF also showed earlier detection of higher dilutions of these echoviruses.

For echovirus-6 and echovirus-11, BGMK cells failed to detect these two viruses. Importantly, in contrast, BGMK-hDAF cells detected highly diluted virus by day 1. While not intending to limit the invention to any particular mechanism, these results indicate that hDAF is essential for entry of these two viruses into BGMK cells.

B. Coxsackie Viruses

BGMK cells are the most sensitive cell line for the detection of Coxsackie B viruses and some Coxsackie A viruses. BGMK and BGMK-hDAF were compared for the detection of Coxsackie viruses A9, B1, B2, B4, and B5. The results are shown in Table 3.

Table 3. Detection of Coxsackie Viruses Using BGMK (BG) Cells And BGMK-hDAF (BG-D) Cells

Cox B1	*	DAY 1		DAY 2		DAY 3	
		BG	BG-D	BG	BG-D	BG	BG-D
-1		2+	4+	4+	4+	4+	4+
		2+	4+	4+	4+	4+	4+
-2		1+	4+	4+	4+	4+	4+
		1+	4+	4+	4+	4+	4+
-3		1+	4+	4+	4+	4+	4+
		1+	4+	4+	4+	4+	4+
-4		1+	3+	4+	4+	4+	4+
		1+	3+	4+	4+	4+	4+
-5		-	2+	4+	4+	4+	4+
		-	2+	4+	4+	4+	4+
-6		-	1+	2+	4+	4+	4+
		-	1+	2+	4+	4+	4+
-7		-	-	-	2+	-	4+
		-	-	-	-	-	-

Cox B5	*	DAY 1		DAY 2		DAY 3	
		BG	BG-D	BG	BG-D	BG	BG-D
-1		2+	4+	4+	4+	4+	4+
		2+	4+	4+	4+	4+	4+
-2		2+	4+	4+	4+	4+	4+
		2+	4+	4+	4+	4+	4+
-3		2+	4+	4+	4+	4+	4+
		2+	4+	4+	4+	4+	4+
-4		1+	2+	4+	4+	4+	4+
		1+	3+	4+	4+	4+	4+
-5		-	2+	4+	4+	4+	4+
		-	2+	4+	4+	4+	4+
-6		-	1+	1+	4+	4+	4+
		-	-	2+	4+	4+	4+
-7		-	-	-	-	-	4+
		-	-	-	-	-	-

Table 3. Detection of Coxsackie Viruses Using BGMK (BG) Cells
And BGMK-hDAF (BG-D) Cells

Cox B2	*	DAY 1		DAY 2		DAY 3		DELETE	Cox A9	*	DAY 1		DAY 2		DAY 3		DELETE
		BG	BG-D	BG	BG-D	BG	BG-D				BG	BG-D	BG	BG-D	BG	BG-D	
	-1	3+	4+	4+	4+	4+	4+	DELETE		-1	2+	4+	4+	4+	4+	4+	DELETE
		3+	4+	4+	4+	4+	4+				2+	4+	4+	4+	4+	4+	
	-2	3+	4+	4+	4+	4+	4+	DELETE		-2	2+	4+	4+	4+	4+	4+	DELETE
		3+	4+	4+	4+	4+	4+				2+	4+	4+	4+	4+	4+	
	-3	2+	3+	4+	4+	4+	4+	DELETE		-3	2+	4+	4+	4+	4+	4+	DELETE
		2+	3+	4+	4+	4+	4+				2+	4+	4+	4+	4+	4+	
	-4	2+	2+	4+	4+	4+	4+	DELETE		-4	1+	4+	4+	4+	4+	4+	DELETE
		2+	2+	4+	4+	4+	4+				1+	4+	4+	4+	4+	4+	
	-5	1+	1+	4+	4+	4+	4+	DELETE		-5	1+	4+	4+	4+	4+	4+	DELETE
		1+	1+	4+	4+	4+	4+				1+	4+	4+	4+	4+	4+	
	-6	1+	1+	3+	3+	4+	4+	DELETE		-6	-	2+	4+	4+	4+	4+	DELETE
		-	1+	3+	3+	4+	4+				-	2+	4+	4+	4+	4+	
	-7	-	1+	-	2+	3+	4+	DELETE		-7	-	1+	4+	4+	4+	4+	DELETE
		-	-	-	-	-	-				-	1+	4+	4+	4+	4+	
	-8	-	-	-	-	-	-	DELETE		-8	-	1+	-	4+	-	4+	DELETE
		-	-	-	-	-	-				-	-	-	-	-	-	

The experiments described above in Example 2 were repeated using H292 and H292-hDAF cells instead of BGMK and BGMK-hDAF cells. Briefly, several echoviruses and Coxsackie viruses were serially diluted and inoculated into wells containing H292 and H292-hDAF cells and the CPE were observed daily. The results of these experiments are shown in Tables 6 and 7.

Table 6. Detection Of Echoviruses Using H₂₉₂ Cells and H₂₉₂-hDAF (H₂₉₂-D) Cells

Echo-4	*	DAY 1		DAY 2		DAY 3	
		H ₂₉₂	H ₂₉₂ -D	H ₂₉₂	H ₂₉₂ -D	H ₂₉₂	H ₂₉₂ -D
-1		1+	1+	2+	2+	4+	4+
		1+	1+	2+	2+	4+	4+
-2		1+	1+	2+	2+	3+	3+
		1+	1+	2+	2+	3+	3+
-3		-	-	1+	1+	3+	3+
		-	-	1+	1+	3+	3+
-4		-	-	1+	1+	3+	2+
		-	-	1+	1+	3+	2+
-5		-	-	-	-	2+	2+
		-	-	-	-	2+	1+
-6		-	-	-	-	-	-
		-	-	-	-	-	-

Echo-9	*	DAY 1		DAY 2		DAY 3	
		H ₂₉₂	H ₂₉₂ -D	H ₂₉₂	H ₂₉₂ -D	H ₂₉₂	H ₂₉₂ -D
-1		1+	1+	2+	2+	4+	4+
		1+	1+	2+	2+	4+	4+
-2		1+	1+	2+	2+	4+	4+
		1+	1+	2+	2+	4+	4+
-3		-	-	1+	1+	3+	3+
		-	-	-	1+	3+	3+
-4		-	-	-	-	3+	3+
		-	-	-	-	-	3+
-5		-	-	-	-	-	-
		-	-	-	-	-	-
-6		-	-	-	-	-	-
		-	-	-	-	-	-

Table 6. Detection Of Echoviruses Using H₂₉₂ Cells and H₂₉₂-hDAF (H₂₉₂-D) Cells

DELETE ADD DELETE ADD DELETE

Echo- 6	*	DAY 1		DAY 2		DAY 3	
		H ₂₉₂	H ₂₉₂ -D	H ₂₉₂	H ₂₉₂ -D	H ₂₉₂	H ₂₉₂ -D
-1		1+	1+	2+	2+	3+	3+
		1+	1+	2+	2+	3+	3+
-2		-	-	1+	1+	2+	2+
		-	-	1+	1+	2+	2+
-3		-	-	1+	1+	2+	2+
		-	-	1+	1+	2+	2+
-4		-	-	-	1+	1+	1+
		-	-	-	-	1+	1+
-5		-	-	-	-	1+	1+
		-	-	-	-	-	1+
-6		-	-	-	-	-	-
		-	-	-	-	-	-
-7		-	-	-	-	-	-
		-	-	-	-	-	-
-8		-	-	-	-	-	-
		-	-	-	-	-	-

Echo- 11	*	DAY 1		DAY 2		DAY 3	
		H ₂₉₂	H ₂₉₂ -D	H ₂₉₂	H ₂₉₂ -D	H ₂₉₂	H ₂₉₂ -D
-1		2+	2+	3+	3+	4+	4+
		2+	2+	3+	3+	4+	4+
-2		1+	1+	2+	2+	4+	4+
		1+	1+	2+-	2+-	4+-	4+-
-3		-	-	2+	2+	3+	3+
		-	-	2+	2+	3+	3+
-4		-	-	2+	2+	3+	3+
		-	-	2+	2+	3+	3+
-5		-	-	1+	1+	3+	3+
		-	-	-	-	3+	3+
-6		-	-	-	-	2+	2+
		-	-	-	-	-	2+
-7		-	-	-	-	-	-
		-	-	-	-	-	-
-8							



09/844,311 09/844,311

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Group No.: to be assigned
Examiner: to be assigned

TRANSMITTAL OF FORMAL DRAWINGS

Official Draftsperson
Assistant Commissioner for Patents
Washington, D.C. 20231

CERTIFICATE OF MAILING UNDER 37 C.F.R. § 1.8(a)(1)(i)(A)

I hereby certify that this correspondence (along with any referred to as being attached or enclosed) is, on the date shown below, being deposited with the U.S. Postal Service with sufficient postage as first class mail in an envelope addressed to: Assistant Commissioner for Patents, Washington, D.C. 20231.

Dated: July 5, 2001

By: 
Anne M. Neiswander

Sir or Madam:


Attached please find:

☒ 5 sheets of formal drawing(s) for this application.

☒ Each sheet of drawing indicates the identifying indicia suggested in 37 CFR
§ 1.84(c) on the reverse side of the drawing.

The Commissioner is hereby authorized to charge any additional fee or credit overpayment to our Deposit Account No. 08-1290. **An originally executed duplicate of this transmittal is enclosed for this purpose.**

Dated: 5 July 01


Kamrin T. MacKnight
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